Why It’s Time to Embrace Technology, Offsite Construction and Lean Methodology

BY JOSH BONE, CONSTRUCTION TECHNOLOGY SPECIALIST, CAISSON

I have been thinking a lot lately about how we, as an industry, tend to focus on the threats in all of the rapid change that’s occurring in our world of design and construction. But I have recently challenged myself and others to take a deeper look and see the opportunities right in front of us, as well.

I have had the privilege throughout my twenty-plus-year career of traveling all across this great country to speak with apprentices, journeymen, architects, engineers, general contractors and owners and share my thoughts and experiences regarding construction technology and its impact on the AEC industry. In my talks, I have discussed the future of Virtual Design and Construction (VDC), robotics, 3-D printing, and my favorite subject—offsite construction. During my presentations, I have shown images and video of a robot laying brick. I have discussed the ability to export different sizes of materials directly from the Building Information Model (BIM) to a TigerStop saw that automatically “nest” the dimensions (that is, optimize and prioritize the cuts that need to be made) to reduce waste, all while removing a laborer from the cutting process all together.

After showing these videos and giving examples like the TigerStop saw, it never fails: during the “Q&A” portion after my presentation, I am always asked about my thoughts and feelings regarding reducing the need for workers. I have to say that I have given this a lot of thought, and the answer I keep coming back to is… if we don’t, someone else will.

I love this quote from Alvin Toffler: “The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.” This highlights the undeniable fact that change is inevitable. We have to look at this new technology and understand how we are going to leverage these tools and improve our quality and productivity, which will ultimately lead to increased wages and safer working conditions. If we perceive these tools as simply a threat to our jobs, we are missing a massive opportunity.

I have been watching these trends in the industry with union labor organizations at the forefront of my mind. Imagine if the United Association, IBEW, SMART, Ironworkers and others came together and embraced offsite construction. I can envision a day where the trades are involved earlier in the design phases on every project and lead the push for Design for Manufacturing and Assembly (DfMA), a type of lean manufacturing that, if done properly, can significantly reduce inefficiencies and streamline the entire building process from the architect’s pencil to the actual jobsite. Then the trades work together in harmony on a modular skid with all the steel, piping, electrical, equipment and rigging in a shared fab shop.

The best place for us to start is by encouraging our organizations to standardize the prefabrication process beginning with the model. If union contractors had the ability to call down to their local and bring on a VDC professional trained in this new standardized process, it would provide them with a tremendous amount of flexibility on projects.

It is time to chase big ideas. A good friend of mine, Stephan Schnell (UA local 567 in San Mateo, CA), asked me a few weeks ago, “If not now, when?” Right now, there’s an abundance of opportunity in construction, and the trades are trending up as a career path for those entering the workforce, partially due to the cost and debt of four-year college degrees. Municipalities at the state and federal level understand the importance of having skilled labor to build and maintain our infrastructure. I agree with Stephan: the time is now to embrace new construction methods and stay ahead of possible disruption.

I definitely understand the concerns with learning to navigate all of this change, but I feel that it is time we embrace technology along with offsite construction and lean methodology. I am confident it will lead organizations like TAUC into the future. Recently, I was offered the opportunity to start a new business to help drive adoption of construction technology and prefabrication in the trades. The name of our business is Caisson, and our core focus is to help trade professionals get their start building a strong foundation in these areas. Why? Because I understand that when it comes to change, oftentimes the hardest part is just getting started.

Josh Bone will be conducting a discussion group during the upcoming Industrial Grade Innovation Conference and Expo (September 10–12 in Cincinnati, OH). Please join Josh and other industry subject matter experts in a content-rich conference focused on shaping the next generation of construction and maintenance through the adoption of construction technology and innovation. Register now at www.IGIexpo.com and check out our ad on the next page.

Josh Bone is a construction technology specialist with Caisson and specializes in integrating technology into everyday workflows for the AEC community.